CHAPTER 1

GENERAL INSTRUCTIONS

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1.1 GENERAL.

The Mobile District Design Manual prescribes standard procedures and instructions to accomplish the required design, drawings, specifications, design analyses, cost estimates, and related support tasks for Military and Civil construction projects under the direction of the US Army Corps of Engineers (COE), Mobile District.

The Statement of Work (SOW) will provide project specific criteria and will, in the case of all conflicts, take precedence over the standard procedures and instructions in this Manual. The designer shall document any such conflicts in writing and bring them to the immediate attention of the Mobile District Contracting Officer's Representative for Architect-Engineer (AE) designs or Project Architect-Engineer (PAE) for in-house designs.

1.2 APPLICABLE PUBLICATIONS.

Applicable publications are listed in the various chapters of this Manual. Unless specifically stated otherwise in this Manual or the SOW, the designer shall be responsible for obtaining all publications applicable to the design of the project. The recommended source for many publications is the Construction Criteria Base (CCB) which contains COE Technical Manuals (TM), Architectural and Engineering Instructions (AEI), Master Planning Instructions (MPI), Engineering Regulations (ER), Engineering Technical Letters (ETL), and most industry and government standards. The CCB resides on Compact Disk - Read Only Memory (CD-ROM) and is available by subscription from the National Institute of Building Sciences, ATTN: CCB, 1201 L Street NW, Suite 400, Washington, DC 20005; telephone (202) 289-7800. Additional project specific publications and references are listed in the SOW.

1.3 INSTRUCTIONS.

1.3.1 Predesign Conference.

The Project Manager shall normally request the designer to attend a predesign conference at the project site and to participate in discussions prior to the preparation of a fee proposal and actual negotiations. During these discussions, all aspects of the required effort which shall affect the designer's fee will be addressed. The designer shall be furnished a draft SOW which will contain project specific design criteria and instructions. Subsequent to the predesign conference, the designer shall receive a request to furnish a fee proposal for accomplishing the work agreed upon during the conference.

1.3.2 Negotiation.

Negotiations shall be held to insure a mutual understanding of the SOW and to reach an agreement on a fair and reasonable fee. During negotiations, the SOW shall be thoroughly reviewed and revised as necessary; and the designer's fee proposal shall be examined and discussed in detail.

1.3.3 Quality Control Plan.

Whenever a design specialist is required for a particular project, it shall be indicated in the SOW. Before design work commences, the designer

shall submit a Quality Control Plan with the name of the specialist he intends to use to the Contracting Officer's Representative for approval the along with the specialist's educational background, experience, and licenses or registrations held.

1.3.4 Architectural Studies.

Models, perspectives, and interior/exterior color renderings necessary for a visual presentation to the user shall be furnished only as specified in the SOW.

1.3.5 Charrette.

A Charrette shall be conducted by the designer only as specified in the SOW. The chapter 9 titled ARCHITECTURAL provides specific instructions and references on charrettes.

1.3.6 Energy Budget Analysis.

For most Military construction projects, specific energy consumption goals are established; and the project must satisfy an energy budget. The designer shall perform an Energy Budget Analysis utilizing a multiple discipline approach to consider all facets of design and construction affecting energy consumption. Site, architectural, structural, electrical, and mechanical disciplines shall all provide input to the analysis to consider energy-saving features. The chapter 19 titled ENERGY AND ECONOMIC STUDIES provides specific instructions.

1.3.7 Economic Studies.

Unless specifically stated otherwise in the SOW, the designer shall provide economic justification for all new designs. In general, the designer is required to achieve the most economical finished product consistent with the design criteria. Economy in every element of construction and design should be sought. For projects with an energy budget, only complete building systems which meet the budget goals will be studied.

1.3.8 Health and Safety Standards.

The facilities, systems, and equipment design standards of the Occupational Safety and Health Act, Code of Federal Regulations, Title 29, Chapter XVII, Parts 1910 and 1926, as applicable, shall be incorporated by the designer into all engineering design and analyses. In addition, the latest versions of the Life Safety Code and the NFPA Code shall be incorporated into the design. Any problem in incorporating these standards due to conflicts with other technical criteria shall be promptly submitted to the PAE for resolution.

1.3.9 Design for the Physically Handicapped.

Unless specifically stated otherwise in the SOW, all facilities shall be designed to be accessible to, and usable by, handicapped persons in accordance with the Uniform Federal Accessibility Standards (UFAS), American with Disabilities Act (ADA), and NFPA Life Safety Codes.

1.3.10 Topographic Surveys, Easements, and Utilities.

Unless otherwise specified in the SOW, the designer shall obtain the topographic, hydrographic, and utility surveying and mapping data required to properly design the project. The chapter 5 titled SURVEYING AND MAPPING provides specific instructions.

1.3.11 Foundation Investigation.

Unless otherwise specified in the SOW, the designer shall obtain the foundation investigation (including soil and rock borings, sampling, laboratory testing, and pile load tests, where applicable), as well as tests such as percolation tests for septic tanks, soil resistivity tests for grounding and cathodic protection systems and infiltrometer test for storm water detension ponds. The chapter 6 titled GEOTECHNICAL provides specific instructions.

1.3.12 Environmental Permits.

The designer's responsibilities for environmental permits are addressed below.

(a) The designer shall contact the appropriate Federal, State, local, and interstate pollution and environmental control agencies to determine the permits required and the procedures and documentation necessary to obtain them. A written record of each such contact shall be prepared and furnished within five working days to the Project Manager with copies to all parties involved.

(b) Where formal documents are required to be submitted to obtain permits, the designer shall prepare all such documents and provide them in a "ready for signature" condition. This includes necessary copies of the plans, specifications, design analyses, and other required supporting documentation. After review by the COE, the documents will be forwarded by the COE to the installation for signature by the appropriate official and submission to the appropriate agency. Permit requirements shall be ascertained by the designer during the Concept Design stage.

(c) The designer shall provide the following information and data for each required permit with the Concept submittal:

(1) Permitting authority (State, local, etc.).

(2) Type of permit required (construction, operation, etc.).

(3) Procedure and time necessary to complete the permit application.

(4) Fees required.

(5) Statement that the project is covered by variances or that permits are not required. If a variance is required, the procedures for obtaining the variance shall be provided. If a permit is not required, reasons and supporting justification (i.e., cite State, local, and/or other regulations) shall be furnished.

(6) An evaluation of all State and/or local regulations to determine if monitoring devices are needed. Where required, monitoring devices shall be included in the project design.

(d) The designer shall provide the completed permit applications not later than the Interim submittal or 60 days prior to the Final submittal, whichever is earlier. Permit applications shall be ready for signature by the appropriate official and submission to the approving authority.

(e) With the Final submittal, the designer shall provide all supporting documents, plans, and specifications. By this time, the designer shall also have accomplished the necessary coordination to obtain permit application approvals.

1.3.13 Lessons Learned.

The designer shall access the Mobile District Lessons Learned Database to insure that problems encountered on previous projects are not repeated. The database is available on the internet from the Mobile District Corps of Engineers, Engineering Division web page at http://wwww.sam.usace. army.mil/sam/en. From this page a link to the LL page may be found.

The designer shall perform a search of the Lessons Learned Database by discipline and location in order to extract a complete report of details for each problem matching the search criteria. The designer shall insure that these problems are not repeated in the design. In addition, the designer shall print a Checklist Report from the Lessons Learned Database for each discipline. A certification document shall be prepared by adding the following statement to the Checklist Report for each discipline:

"I certify that each Lesson Learned listed hereon was reviewed by me or subordinate designers under my supervision and the recommendations associated with each Lesson Learned have been followed in the design."

These certifications must be signed by the registered engineer or architect responsible for each discipline and included with the Final submittal.

1.4 DEFINITIONS.

1.4.1 Design Analysis.

The design analysis is provided with each submittal. The design analysis is a written explanation of the project design and is expanded and revised for each submission. The design analysis contains a summary of the criteria for and the history of the project design, including criteria furnished by the COE, letters, codes, references, conference minutes, and pertinent research. The justification for each major selection and design decision shall be clearly stated. Design calculations, computerized and manual, are included in the design analysis. Narrative descriptions of design solutions are also included. Written material may be illustrated by diagrams and sketches to convey design concepts. Copies of all previous design phase review comments and the specific actions taken in response to each comment are included with each submission of the design analysis. Shall also include a separate section with pertinent notes to the Government’s Construction Manager. Specific requirements for the design analysis are provided in other chapters of this Manual.

1.4.2 Drawings.

Drawings are a part of each submittal. The drawings in the Concept submittal may or may not be used later as working drawings. In either case, the Concept drawings show all aspects of how the functional requirements are satisfied but are not complicated by unnecessary detail. The Interim drawings, if required by SOW, are approximately 60% complete working drawings which are adequately labeled and cross-referenced for review. Complete, thoroughly checked, and coordinated contract drawings are included in the Final submittal. The drawings are made Ready-To-Advertise by the incorporation of the Final review comments. Specific drawing requirements are provided in other chapters of this Manual.

1.4.3 Life-Cycle Cost Analysis.

Life-cycle cost analyses are engineering economic studies which consider the potential economic impact of time on alternate systems, subsystems, and components over a given life cycle. A Life-Cycle Cost Analysis provides a means to determine the total cost of each alternate by considering not only the initial cost of construction but also the costs associated with operation and

maintenance over a given life-cycle. The Life-Cycle Cost Analysis is developed in accordance with guidance provided in other chapters of this Manual.

1.4.4 Specifications.

Outline specifications are required for the Concept and Interim submittals. Draft specifications are submitted at Final. The final contract specifications incorporating all previous review comments are required for the Ready-To-Advertise submittal. The specifications are developed in accordance with guidance provided in other chapters of this Manual.

1.5 SUBMITTAL REQUIREMENTS.

1.5.1 General.

The documents which the designer shall turn in for each submittal are listed and generally described below. More specific instructions on number of copies, addressing, and other specific instructions are provided in the SOW.

1.5.2 Project Definition (10-15%).

This submittal represents approximately 10 to 15% of the design effort and shall validate requirements and develop schematic designs.

1.5.3 Concept Design (30-35%).

This submitta2l represents approximately 30 to 35% of the design effort and shall be of sufficient detail to show how the users' functional and technical requirements will be met, indicate the designer's approach to the solution of technical problems, show compliance with design criteria or provide justification for noncompliance, and provide a valid estimate of cost. The Concept Design consists of:

(a) Design Analysis:

(l) Design narrative, notes to Construction Manager, and design calculations for all disciplines.

(2) Energy Budget Analysis.

(3) Life Cycle Cost Analyses.

(4) Outline specifications.

(b) Concept drawings.

(c) Bidding schedule.

(d) Concept cost estimate.

(e) Required information and data for each required permit.

(f) Value Engineering.

The designer shall provide a candidate list of areas to be considered for value engineering evaluation. Areas listed shall be those that appear too costly due to design restraints placed on the designer by the project criteria and COE guidance and specifications.

1.5.4 Interim Design (50-65%).

This submittal, if required, is primarily to insure that funding limitations are not being exceeded and that the drawings, specifications, design analysis, and cost estimate are proceeding in a timely manner and that the design criteria and previous review comments are being correctly interpreted. The Interim Design consists of:

(a) Design Analysis developed to approximately 60% completion.

(b) Approximately 60% complete drawings.

(c) Detailed cost estimate developed to approximately 60% completion.

(d) Annotated Concept review comments.

(e) Completed permit applications (if an Interim submittal was not required, the completed permit applications are required 60 days prior to the Final submittal).

1.5.5 Final Design (unreviewed 100%).

This submittal represents a 100% complete design with the exception of the incorporation of any review comments resulting from the review of the submittal. The Final Design consists of:

(a) Design Analysis with all items l00% complete. It shall include all backup material previously submitted and revised as necessary, all design calculations, all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the Final drawings and specifications, and complete notations for Construction Manager.

(b) 100% complete drawings.

(c) Specifications. Final edited specifications.

(d) Bidding schedule.

(e) Detailed 100% complete cost estimate.

(f) Annotated Interim review comments.

(g) Lessons Learned Certification for each discipline.

(h) All supporting documentation required for permit application approvals.

1.5.6 Ready-To-Advertise.

This submittal represents a 100% complete design including the complete incorporation of all review comments resulting from the review of the Final submittal.